



The ILC GDE Meeting at Bangalore, India

Shekhar Mishra
Fermilab

“It is an inherent obligation of a great country like India with its traditions of scholarship and original thinking and its great cultural heritage to participate fully in the march of science, which is probably mankind's greatest enterprise today.” First Prime Minister of India, Mr. Jawharal Nehru



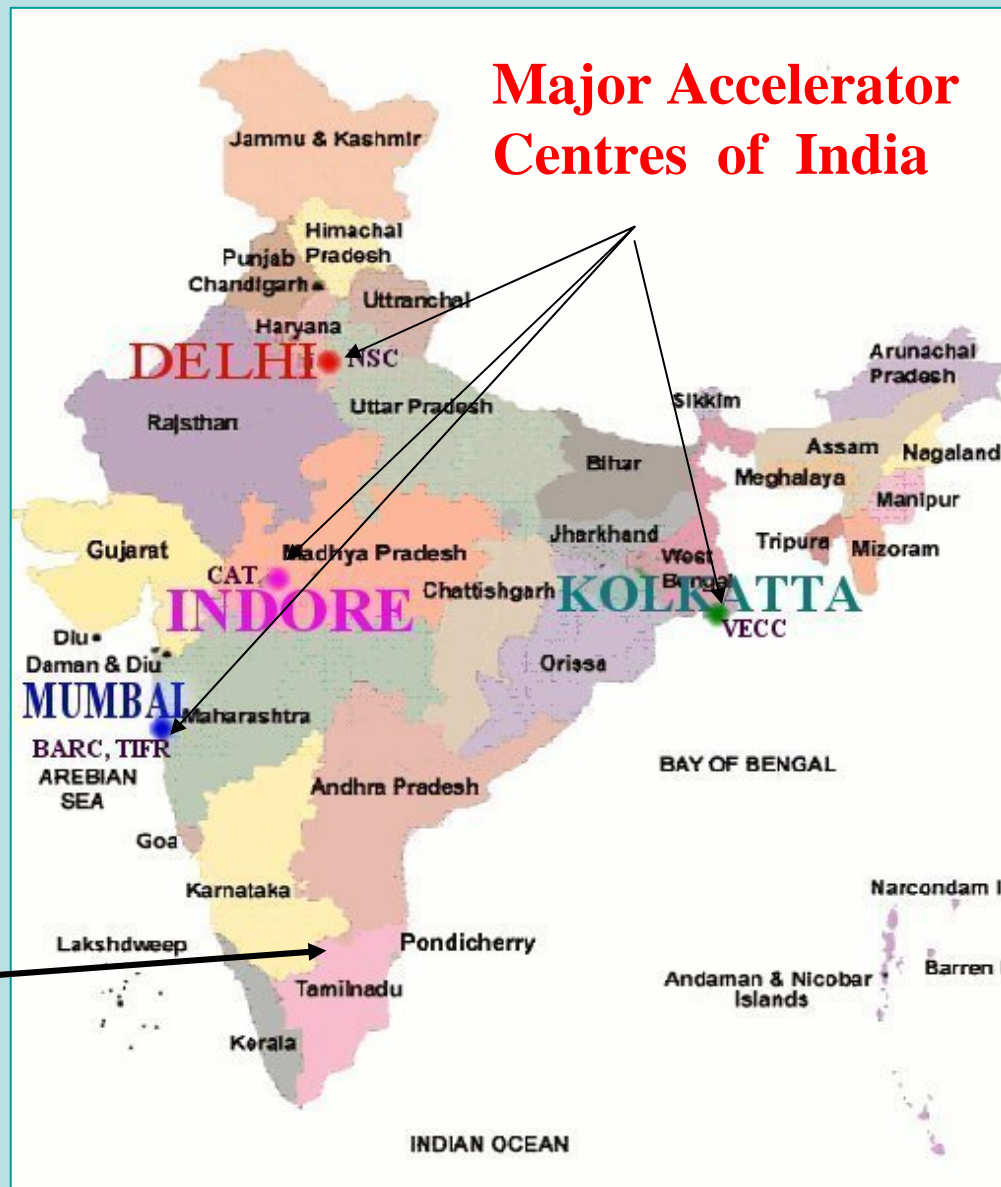
India HEP Collaboration in world

- Indian scientists have been collaborating at CERN for decades.
- India has build accelerator and detector components for LHC/CMS. Its participation and contribution to LHC has given India an Associate Member State status with CERN.
- Indian participates in experiments at KEK and DESY. They have also expressed interest in joining GSI.
- India is also collaborating at Fermilab, BNL and earlier with ANL.
- One Indian University is collaborating with Fermilab on ILC Main Linac Accelerator Physics.
- India's accelerator program includes Light Source, High Intensity Proton Source
- India has stated that after their commitment to LHC is over they will be looking for other large accelerator project.
- India's funding works in 5 year cycle and next one starts in 2007.



Accelerators in India

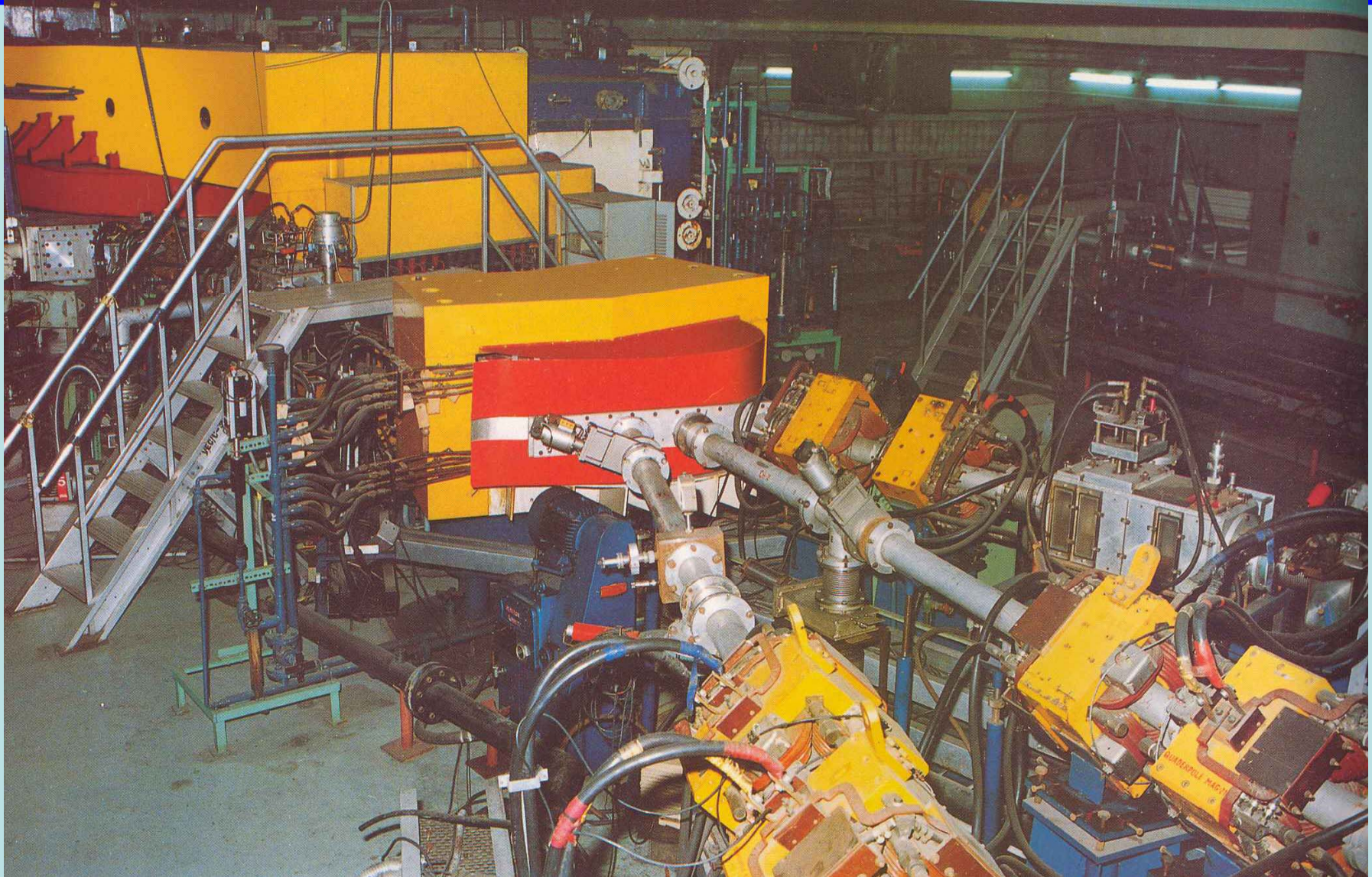
Major Accelerator Centres of India



Bangalore



224 CM VARIABLE ENERGY CYCLOTRON AT VECC





Variable Energy Cyclotron Center



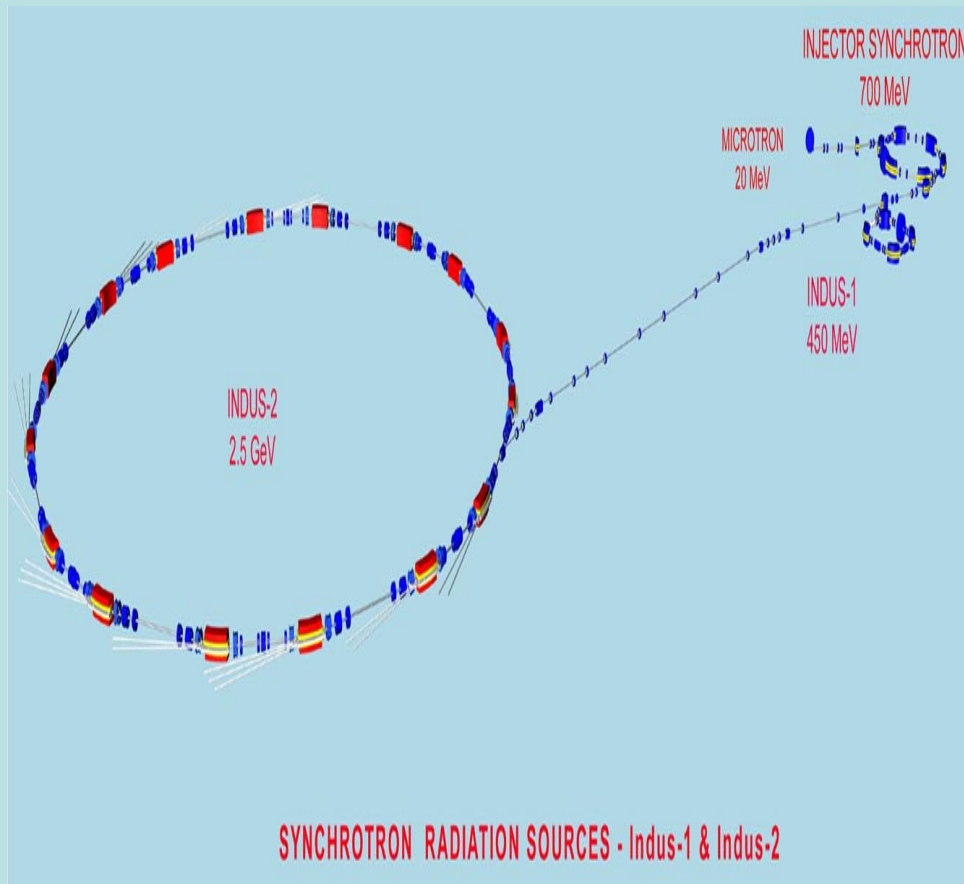
UPPER POLE CAP WITH POLE TIP
ASSEMBLY IS BEING PLACED ON TO
LOWER ASSEMBLY



CYCLOTRON MAGNET WITH
CRYOSTAT INSTALLED IN IT



Center of Advanced Technology



Schematic view of Indus Complex

Important Dates and Features:

1992: Conceived

1996: Work commenced for 2 GeV energy

Nov. 1997: International Advisory Committee – Energy enhanced to 2.5 GeV and RF frequency raised from 189 MHz to 505 MHz

Present Cost: 95 Crores (20 Million USD)

Indigenous Systems Developed and Built:
Vacuum chambers, magnets, power supplies, beam diagnostics, RF power system

Imported Items: RF cavities, Klystrons, UHV valves



Indian Industry in Accelerator Technology



Main Dipole Magnet for Indus-2 made by Godrej, Mumbai



Dipole Chambers, Made by BAL, India

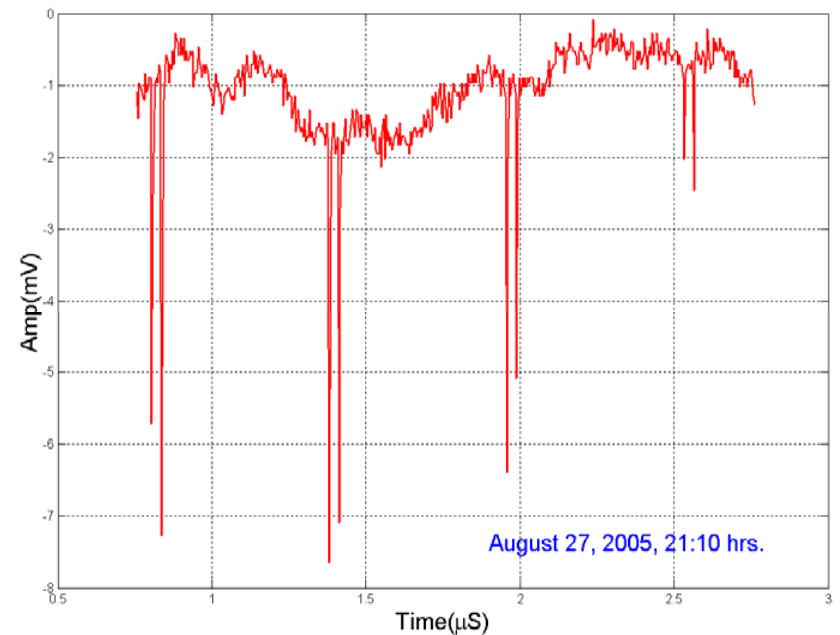


CAT: Indus-2



View of various magnets in Indus-2

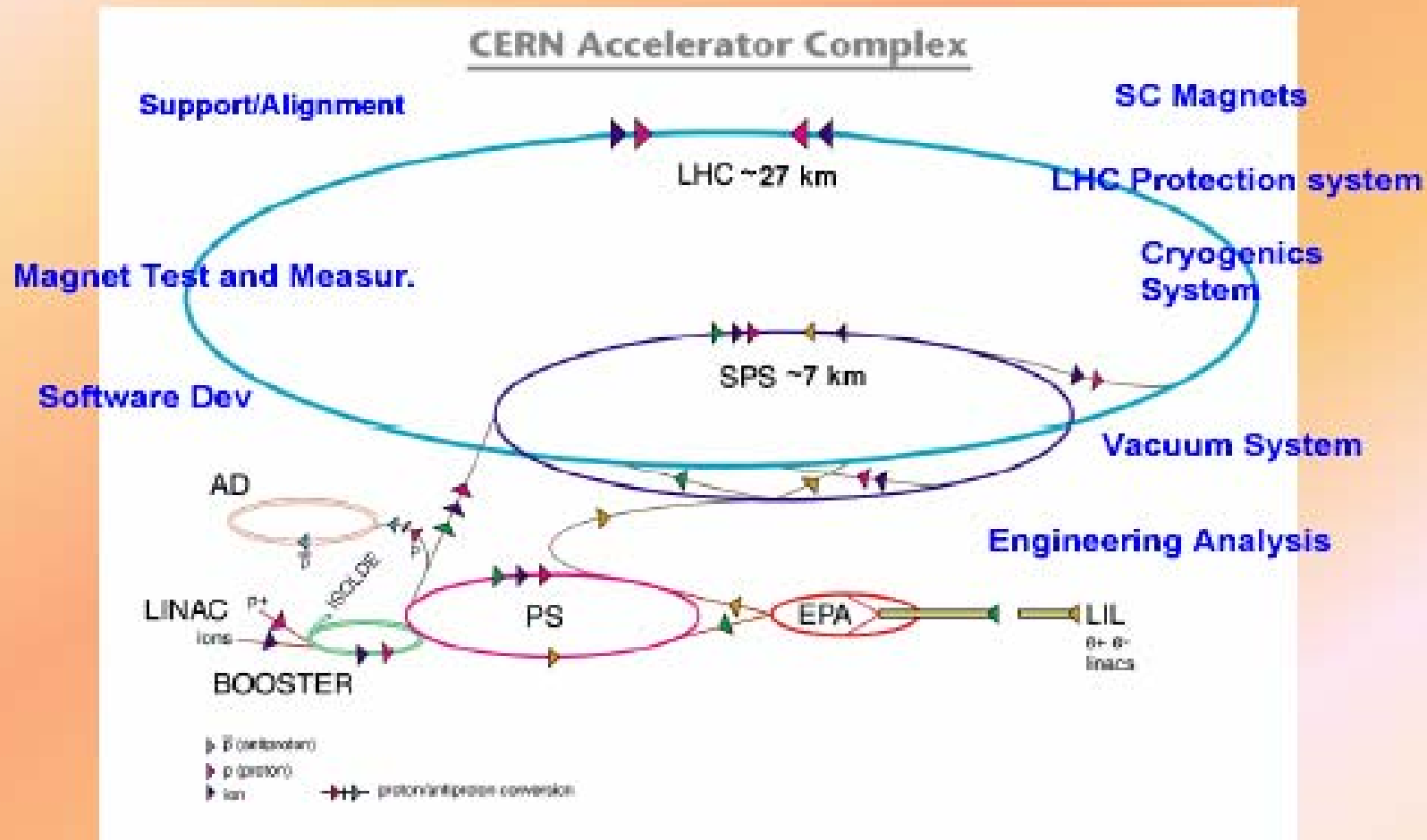
Four Turn Beam Circulation
as seen on Wall Current Monitor(SS-8)



Commissioning of Indus-2 is in progress. They have stored beam at 450 MeV for ~200 msec and have seen light.



India: LHC

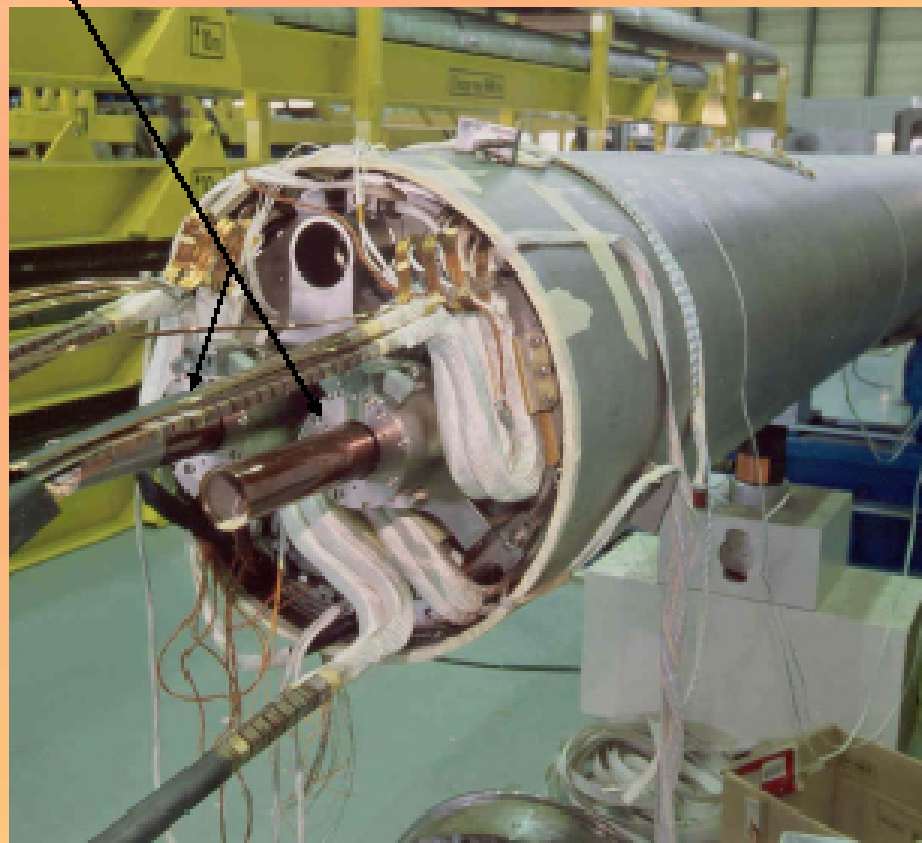


Indian Contributions – LHC domains

Dipole Corrector for LHC

MCS & MCDO Corrector Magnet on main dipole magnet

- To correct the systematic field errors of the LHC Main Dipole
- They Share the same cryostat as that of Main Dipole
- Their proper functioning is as important as Main Dipole

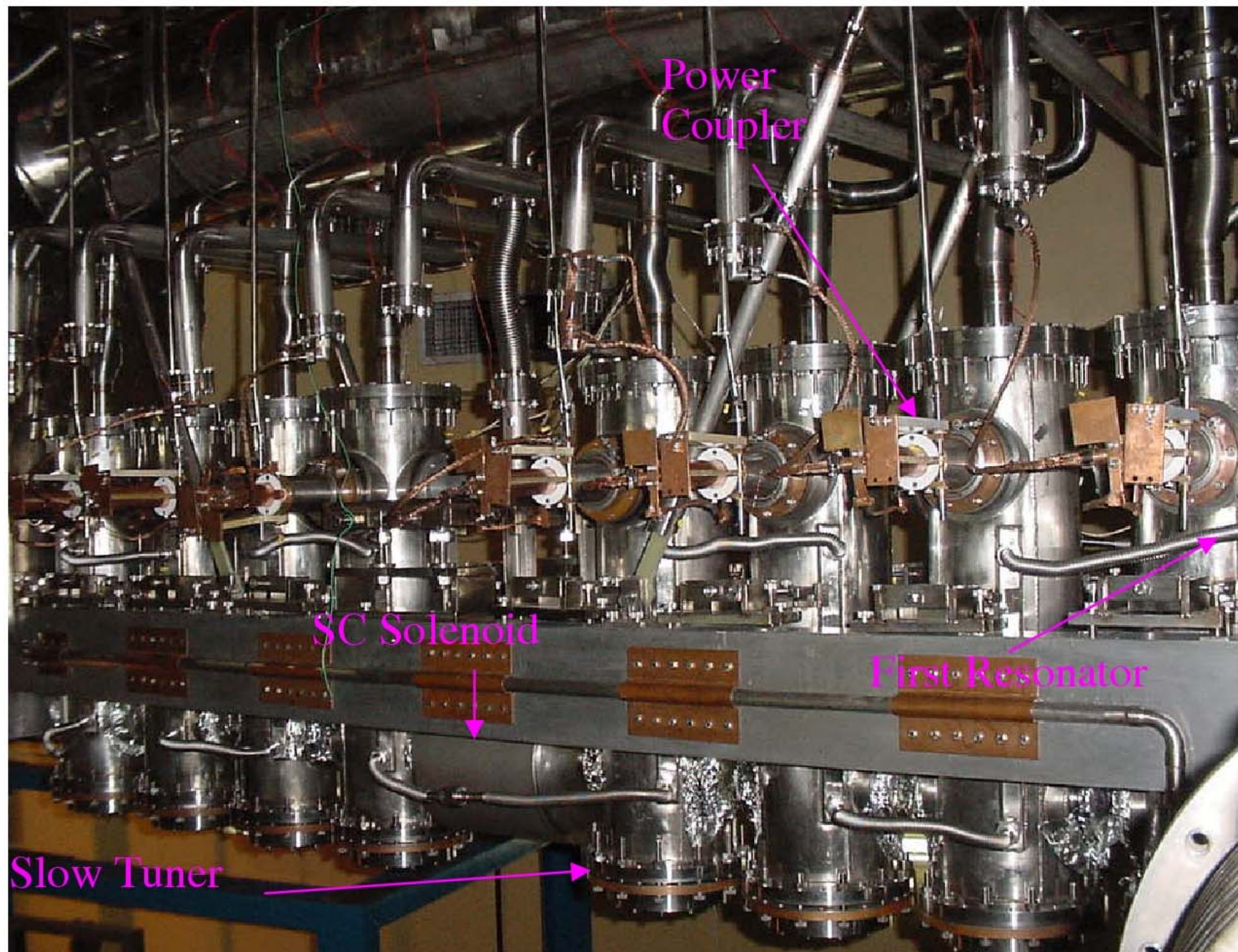


End view of the LHC main Dipole



SCRF Facility at NSC







Goal of GDE Meeting at Bangalore

- The GDE meeting will be three months after the Frascati.
 - Report on BCD and changes since Frascati. By Change Control Board.
 - R&D Program Evaluation by the CCB.
 - Report from Design and Cost Board on progress towards design and cost.
 - Report from R&D Board on coordination of the global R&D.
 - Progress reports from RDR Matrix.



Meeting Plans

- The GDE meeting is being organized in parallel with the LCWS06 meeting.
- The GDE meeting will be from 3/9-11/06. GDE will have the morning of 3/9 and last hour of 3/11 in Plenary with LCWS06. The LCWS06 meeting will be from 3/9-3/13.
- We have requested for 5 rooms for parallel sessions. (Room situation is very tight.)
- The details of the meeting is being worked out between LCWS and GDE.
- The website of the workshop is <http://www.tifr.res.in/~lcws06/index.php>
- Please register at this website. It has almost all the information you will need to travel to India.
- GDE Administrative Assistant Maxine Hronek is helping me organize this meeting.
 - She will send a mail to all the GDE members to send her some information regarding your travel. This information will help us plan the meeting.
 - Please let us know who else from your institute will be attending the GDE meeting.
- We are developing a GDE Meeting Webpage on the ILC Website. You will find needed information there. If not just ask.



After the GDE Meeting

- On request from India Government GDE is organizing two lecture series for Senior Engineering Students from Indian Institute of Technology (IIT) on 3/13.
 - Topics: Engineering Challenges in Accelerator
 - These schools will be held at IIT, Delhi and Mumbai
 - We are looking for 8-10 scientists. Barry and I will work on this over the holidays.
- If you want to visit any India's accelerator laboratory please send me an email. I will try my best to help.



Travel Information

- Although you could fly into Bangalore directly from major international hubs. Plan to fly into Delhi, Mumbai, Calcutta, Madras to save cost.
- You can use Indian Travel Agents (if your institution allows) to get cheaper air tickets from a consolidator. We will put some link for you

Accommodation Information & Hotel Tariff

TCI has negotiated special rates with a series of hotels. The list of the official hotels is as follows:

| <u>Hotel Name</u> | <u>Room Type</u> | <u>Tariff</u> | | | |
|-----------------------|------------------|--------------------|------------|--------------------|------------|
| | | <u>Single Room</u> | | <u>Double Room</u> | |
| | | <u>USD</u> | <u>INR</u> | <u>USD</u> | <u>INR</u> |
| Golden Palm Resort | Deluxe | 125 | 5600 | 135 | 6100 |
| The Atria | Standard | 140 | 5000 | 160 | 5600 |
| Chancery | Superior | 135 | 5000 | 145 | 5700 |
| | Esquire Club | 145 | 5600 | 155 | 6500 |
| Goldfinch | Superior | 110 | 4500 | 125 | 5000 |
| | Suite | 150 | 5850 | 160 | 6300 |
| Golden Landmark | Standard | 80 | 3200 | 85 | 3500 |
| St. Marks Hotel | Standard | 95 | 3900 | 107 | 4400 |
| | Executive | 110 | 4500 | 122 | 5000 |
| | Suite | 125 | 5200 | 135 | 5500 |
| The Basil | Standard | 46 | 1900 | 50 | 2050 |
| Ashraya International | Standard | 44 | 1800 | 54 | 2200 |



Travel Information...

- You will need visa to enter India. Please apply early. You should apply for Tourist Visa. This requires less paper work rather than a visa to attend a conference. (Less Paperwork).
- Banking system in India is not as flexible as west. ATM machines are available that takes US cards.
- Almost everyone you will do business with understand English.
- India is safe to travel. You should common sense in traveling anywhere.
 - Seek your physicians advice on medical needs
 - Although water from the tap is perfectly safe to drink.
 - You must drink only bottled water, no ice.
 - Do not eat cold food and food from a place you are not recommended.
- If you need any further assistant with travel and visit to other places the travel agent can help. We will put some standard tour plans for you.